

### **Abstract**

Systems and methods related to amplifier systems which use a predistortion subsystem to compensate for expected distortions in the system output signal. A signal processing subsystem receives an input signal and decomposes the input signal into multiple components. Each signal component is received by a predistortion subsystem which applies a predistortion modification to the component. The predistortion modification may be a phase modification, a magnitude modification, or a combination of both and is applied by adjusting the phase of the fragment. The predistorted component is then separately processed by the signal processing subsystem. The processing may take the form of phase modulation and amplification. The phase modulated and amplified components are then recombined to arrive at an amplitude and phase modulated and amplified output signal. The predistortion modification is applied to the components to compensate for distortions introduced in the signal by the signal processing subsystem.